Information Builders

A White Paper

Dirty Data, Broken Trust

Restoring Faith in Your Decisions With Data Quality Management

WebFOCUS iWay Software Omni

Information Builders helps organizations transform data into business value. Our business intelligence, integration, and data integrity solutions enable smarter decision-making, strengthen customer relationships, improve performance, and drive growth.

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Table of Contents

Introduction

At the heart of every decision your organization makes is data. No matter how well your business processes are designed, or how advanced your analytics strategy is, the integrity of the underlying data determines whether you thrive or falter.

When your organization reaches out to prospects using invalid contact details, marketing dollars are wasted and sales revenues are lost. When executives make decisions using erroneous data, bad plans and strategies drain productivity and waste resources. When help desk and support staff have incorrect customer information, poor service experience decreases loyalty and retention.

University of Chicago historian Daniel J. Boorstin once said, "The greatest enemy of knowledge is not ignorance, it is the illusion of knowledge." When enterprise data is incorrect or incomplete, it leads to one bad decision after another. This diminishes confidence among your information consumers and has a profound negative impact on your bottom line.

Who's affected by bad data? Everyone. From the marketing manager using outdated prospect details to promote a new product, to the physician caring for a patient with a chronic condition without a full history of treatments received in other facilities, or the shop floor manager struggling to identify the underlying causes of product defects with incomplete warranty claim data.

Scenarios like these cause stakeholders to lose trust in the data they rely on to make important decisions. This white paper will discuss how this mistrust destroys economic value. We'll outline the tangible and measureable costs of poor data quality, and highlight strategies and solutions for restoring trust and eliminating risk through improved data management.

Bad Data: The Impact Is Bigger Than You Think

Bad data currently exists in almost every organization. Whether it's missing, incorrect, incomplete, or inconsistent across sources, as much as 32 percent of your data is likely in pretty poor shape.[1] If left unchecked, the amount of corrupt or invalid information you have – and the damage it causes – will continue to grow as your data volumes increase.

The causes of bad data are vast and varied. Among the most common are human error (which accounts for 59 percent of all data integrity problems) and multiple databases (which 42 percent of companies blame for their data quality headaches).[2] Similar information, such as customer contact details, is often redundant or inconsistent across these diverse and disjointed databases.

But regardless of the underlying reasons, the results are troubling from both a business and a financial perspective:

- 77 percent of companies believe their bottom line is affected by inaccurate and incomplete contact data[3]
- Ovum Research claims that companies lose about 30 percent of their revenues due to poor data quality[4]
- Regulatory fines, monetary losses from bad business decisions, and legal fees resulting from data errors can add up to millions of dollars, with IBM estimating the total cost to U.S. organizations to be $3.1 trillion dollars annually[5]
- Critical errors make up 10 to 25 percent of the average marketing database[6]

These statistics are just the tip of the iceberg. All departments and functions will feel the impact when bad data flows into and across your enterprise.

[1] Haselkorn, Erin. "New Experian Data Quality Research Shows Inaccurate Data Preventing Desired Customer Insight," PR Newswire, January 2015.

[2] Schultz, Thomas. "The State of Data Quality," Experian Data Quality, September 2013.

[3] Schultz, Thomas. "The State of Data Quality," Experian Data Quality, September 2013.

[4] Lawson, Lorraine. "What Does Bad Data Cost," IT Business Edge, February 2015.

[5] Redman, Thomas, C. "Bad Data Costs the U.S. $3 Trillion Per Year," Harvard Business Review, September 2016.

[6] "The Impact of Bad Data on Demand Creation," SiriusDecisions.

Organizational Initiatives That Drive Data Quality Needs

The quality of data has always been important. But some emerging strategies and initiatives have heightened the risk of bad data, or increased the urgency of data integrity.

Data Integration

Your organization may often find itself integrating new operational systems into your environment, converting from legacy to modern applications, or consolidating data in warehouses and marts for the purposes of business intelligence (BI) and analytics. The success of these initiatives hinges not only on your ability to access timely information across all sources, but your ability to preserve the integrity of data as it is being retrieved from its point of origin, moved, and delivered to its new location.

Data must be profiled, cleansed, and enriched as a part of the integration or migration process, with quality controls in place to maintain integrity once it is loaded. Furthermore, scalability is critical in large-scale migration efforts or in highly sophisticated environments.

Data integration is also one of the biggest challenges of mergers and acquisitions. In a recent KPMG survey, 83 percent of responding organizations completed at least one acquisition in 2016, with 84 percent planning to do so in 2017.[7] To empower effective decisions both pre- and post-merger, diverse environments must be seamlessly unified, in spite of the varied sources and formats in which information resides.

This won't happen overnight; yet speed is important, because the longer integration takes, the greater the risks to your organization. In addition to broad-reaching integration capabilities to rapidly bring all systems and data together, you need data quality management to ensure the ongoing accuracy of information as it flows across these disparate infrastructures.

Data Management

The effective streamlining, harnessing, and leveraging of enterprise data to improve decision-making and increase value is a key priority for many organizations. This becomes particularly difficult during mergers and acquisitions, when differing methods of handling and managing data must be converged. But no data management strategy is complete without mechanisms for ensuring information consistency, timeliness, and accuracy across the entire enterprise – an arduous task given the diverse nature of today's infrastructures.

Core data quality management features like profiling, standardization, scoring, and cleansing can help you maintain information integrity on an ongoing basis, while master data management (MDM) functionality can provide your stakeholders with single views of customers, suppliers, locations, and other domains across systems.

[7] Tiemann, Daniel. "M&A Experts Weigh In On Deals for 2017," KPMG LLP, 2017.

Data Governance

As your organization establishes its policies for controlling enterprise data and avoiding or handling data quality issues, your information leaders – for example, your chief data officer (CDO) and your data stewards – will need capabilities that support continuous data governance. This should include data profiling, remediation alerts and workflows, efficient problem tracking and resolution, and MDM.

Big Data

Increasing volumes and new sources have created a major shift in the way data is processed and managed. Much of this data is of questionable quality; it's either machine-generated, derived from social media, or originates from some other external source. This poses a problem, since better decision-making is one of the biggest promises of big data.

To keep it all current and correct, regardless of where it comes from, data quality capabilities like profiling and standardization must be applied during ingestion, as well as upon landing it in your big data repository.

Industry Use Cases

No matter what sector you operate in, bad data poses big problems. "An incorrect laboratory measurement in a hospital can kill a patient. An unclear product spec can add millions of dollars in manufacturing costs. An inaccurate financial report can turn even the best investment sour,"[8] says noted data quality advisor Thomas C. Redman.

Healthcare

"The problem in healthcare lies with the quality of the data," claim Julia Adler-Milstein and Ashish K. Jha in a recent report published by the *American Journal of Managed Care*.[9] "To derive insights from data, it is critical that they be accurate and relatively complete. When data are systematically biased through either errors or omissions, the correlations that give rise to new insights will be missed or spurious, and could result in misguided confidence or scarce resources dedicated to chasing down dead ends."

To enhance care management, reduce related costs, and increase operational efficiency, healthcare organizations must unify their siloed data and ensure its integrity. This means tapping into sources within different departments, across facilities within the network, and those maintained by third parties such as laboratories, to create a single view of the patient journey. Historical snapshots and full auditability are also important.

St. Luke's University Health Network, for example, has made its data more trustworthy by creating a single view of each patient across the continuum of care. With the help of comprehensive data management solutions, St. Luke's has addressed the challenges of integrating data across electronic medical record (EMR) applications, human resources and financial solutions, and external data sources, while ensuring its accuracy and consistency and making it available to hundreds of users in support of better clinical decision-making.

Financial Services

According to KPMG, data quality is "high on the list of priorities of senior management, supervisory boards and managing boards at financial institutions," due to a variety of factors, including the need to regain public trust with customers and other stakeholders.[10] Real-time access to data that is accurate, complete, and consistent can not only strengthen customer relationships, but also empower financial services firms to meet regulatory requirements, better manage risk, improve transparency, and streamline operations across multiple lines of business or in the face of rapid mergers and acquisitions activity.

[8] Redman, Thomas, C. "Data's Credibility Problem," Harvard Business Review, December 2013.

[9] Adler-Milstein, Julia; Jha, Ashish K. "Healthcare's Big Data Challenge," American Journal of Managed Care, July 2013.

[10] "Financial Institutions Increase Their Focus on Data Quality," KPMG LLP, May 2016.

French insurance company SMACL is complying with Solvency II regulations, while analyzing and improving the quality of business data to enhance service levels and company performance. Data quality management solutions help the company to verify and improve the quality of business data, manage quality improvement through dashboards, and involve pertinent stakeholders in data governance activities. The company can now measure and control the quality of data and identify sources of anomalies to optimize information integrity enterprise-wide.

Retail

Data quality programs help retailers to optimize information about consumers, products, and vendors. This enhances merchandising, inventory management, staffing, marketing and promotions, and other important functions, while facilitating efficient multi-channel operations.

"Think of sales that could be captured if retailers could see real promotional in-stocks, transportation schedules, competitor price moves, and more using accurate, clean data," says Delaney Consulting. "Think of the wasted hours in drilling into issues that turn out to be data anomalies that happen every single day in every single retailer in America."[11]

Manufacturing

Production, quality control, and demand planning are among the many functions that manufacturers can enhance through improved data quality. Incorrect or incomplete data hinders visibility into manufacturing processes, resulting in engineering flaws, manufacturing over- and under-runs, product defects, and other problems.

For RealD, a producer of 3D and other visual technologies, data quality management dramatically enhances visibility into its revenue cycle. Free-form fields in an enterprise resource planning (ERP) system provide information about tax obligations, such as box office reports outstanding and the time gap between reports and generated invoices. Those fields are scanned, scoring and matching is performed, and data that falls outside an expected range is identified. A report of all rejected fields is generated, allowing users to make the needed corrections. Better data enables billing employees to create more accurate tax obligation reports to satisfy state compliance requirements.

State and Local Government

Seventy-seven percent of government agencies believe that inaccurate data interferes with their ability to deliver superior public service.[12] Actionable, real-time information that is timely and trustworthy enables effective management of budgets, programs, assets, and operations, and enhances communications across agencies and with constituents.

[11] Delaney, Flora. "Why Data Quality Matters to Retailers," Delaney Consulting, August 2011.

[12] "Data Quality for the Public Sector," Experian Data Quality.

The City of Charlotte, North Carolina lacked standard processes for entering and validating property addresses, resulting in redundant efforts, inconsistent information, and high aggregate costs. Solutions that automate profiling, cleansing, matching, and enrichment were applied, and a golden set of master records was created to serve multiple entities. Service representatives now have a more complete, accurate, and consistent view of addresses that can be linked to nearby services.

Logistics

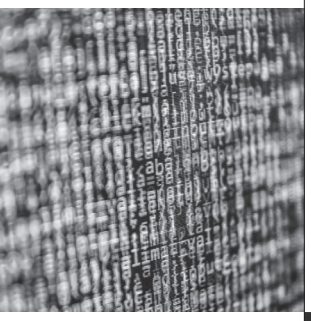
A large number of stakeholders generate and consume information across complex global supply-chain operations. Furthermore, the information exchanged during the course of supply-chain transactions exists in various formats. As a result, the risk of poor data quality is high. Planning and execution can be enhanced with a standardized view of partners, products, and activities throughout the end-to-end supply chain.

When global trade intelligence provider JOC Group wanted to provide clients with better information to make critical business decisions, it implemented an environment for cleaning raw data, parsing it into a usable format, and delivering it through consolidated views. This makes information more valuable to clients, who rely on it to obtain competitive insight, conduct market research, and target buyers and suppliers.

Creating a Healthy Environment for Good Data

There's more to good data than locating and cleansing bad records. These steps will help you create an environment where data is valued, and ensuring its health is a top priority for all:

- **Promote Cultural Change** – Encourage your users to view data as a tangible asset, rather than an abstract one, so they understand the importance of maintaining its integrity
- **Identify Important Data** – IT and business users should work together to determine which data is most essential to your organization, so it is clear where data management efforts should be focused
- **Create a Data Strategy** – Define clear requirements and priorities for data usage and management, and share the strategy with all stakeholders across the organization
- **Establish Data Stewards** – Promote accountability by identifying those who will be responsible for creating and enforcing practical governance guidelines
- **Sell the Value** – Foster an understanding of why data management practices are helpful and how the new regulations and policies will help your organization



Conclusion

Information Builders' data management solutions are used by leading organizations like JOC Group, RealD, SMACL, St. Luke's University Health Network, and others. Designed to promote broad-reaching quality and governance across your organization, our technologies combine robust features with proactive processes and controls to keep dirty data away from your most important information assets, so you can rest assured that your data is always decision-ready.

Omni-Gen™

Omni-Gen provides a single platform housed in the cloud or on-premises, for generating applications that combine data integration, data quality, and master data management – in a fraction of the time such projects used to require. With Omni-Gen, the time for typical projects can be reduced from years to months or even weeks.

Omni-Gen is available in three editions:

- **Master Data Management Edition** combines advanced enterprise integration and robust data quality management with effective data governance functionality for rapidly creating and efficiently maintaining a single view of core entities among all information sources
- **Data Quality Edition** provides tools for unifying information from diverse sources, and ensures information completeness, validity, consistency, timeliness, and accuracy across all systems, people, and processes with advanced data quality management capabilities
- **Integration Edition** includes powerful application and data integration capabilities that provide seamless access to any application or data store, to enable rapid creation of integration architectures with the greatest breadth and depth

For more information, visit **informationbuilders/products/omni**.

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